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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,093	03/02/2004	Robert Scott Winsor	0918.0269C	1178

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EXAMINER	
WANG, QUAN ZHEN	
ART UNIT	**PAPER NUMBER**
2633	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/790,093	WINSOR, ROBERT SCOTT	
	Examiner	Art Unit	
	Quan-Zhen Wang	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/2/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the generating the incoherent beam of light with a light emitting diode, a superluminescent light emitting diode, a fiber-optic coupled light emitting diode; amplifying the incoherent beam of light with an EDFA; collimating the beam with a gradient index leans; directing the optical beam using active and static pointing techniques; using an interferometer to toggle the light beam; must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 12-17, 19-24, 33-38, 40-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Doucet et al. (U.S. Patent US 5,786,923).

Regarding claims 1, and 24 Doucet teaches a method for light transmit across a free space (fig. 1, 100), the method comprising: generate a substantially phase incoherent beam of light (column 4, lines 52-56); collimating the phase incoherent beam of light (fig. 8, optical antenna 710); and propagating the phase incoherent collimated beam of light across the free space (fig. 8, to/from optical router unit).

Regarding claims 12 and 33, Doucet further teaches that the system includes collimating the beam of light with one of a conventional optical mirror (fig. 8, optical antenna 710).

Regarding claim 13, Doucet further teaches focusing the beam of light onto a primary focal plane of a telescope (fig. 8, lens 780).

Regarding claim 14, Doucet further teaches directing the optical beam towards an optical receiver using active pointing techniques (fig. 8, active optical control system 760).

Regarding claims 15 and 36, Doucet further teaches directing the optical beam towards an optical receiver using static pointing techniques (column 17, lines 39-48).

Regarding claims 16-17, and 37-38, Doucet further teaches to modulate the phase incoherent beam of light to encode data upon the beam of light (fig. 8, beam modulator 752).

Regarding claims 19, and 40, Doucet further teaches to modulate WDM channels within the beam of light (column 8, lines 13-20).

Regarding claim 20, Doucet further teaches to receive the incoherent beam from free space (fig. 8, signals to/from optical router).

Regarding claim 21, Doucet further teaches tracking the receiving beam of light using active pointing and tracking techniques (column 17, lines 49-54).

Regarding claims 22-23, Doucet further teaches to detect one of light and darkness within the received beam of light (inherent), thereby to produce a received data stream and demodulate the received data stream (fig. 8, Beam demodulator 772 and receiver 770).

Regarding claim 34, Doucet further teaches that the propagating optics is a telescope (fig. 8, optical antenna 710).

Regarding claim 35, Doucet further teaches that the propagating optics further includes an active pointing and tracking module to control the direction in

which the incoherent beam is propagated (fig. 8, beam alignment detector 762 and active optics control system 760).

Regarding claim 41, Doucet teaches an apparatus (fig. 8) for receiving a collimated phase incoherent beam (column 4, lines 52-56) of light from a free space (fig. 8, signal from optical router), comprising: a receiving lens (fig. 8, lens 780) to receive the collimated phase incoherent beam (fig. 8, beam 140/150 to the optical antenna 710) from free space; and a light detector to detect (fig. 8, beam demodulator 772; column 19, lines 62-64) at least one of light and darkness within the received phase incoherent beam of light, thereby producing a received data stream (column 19, lines 52-64).

Regarding claim 42, Doucet further teaches that the system comprising a demodulating module to demodulate the received data stream (fig. 8, beam demodulator 772).

Regarding claim 43, Doucet further teaches that the propagating optics further includes an active pointing and tracking module to control the direction in which the incoherent beam is propagated (fig. 8, beam alignment detector 762 and active optics control system 760).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2-10, and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923).

Regarding claims 2-10 and 25-31, the system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the system includes various claimed methods of generating incoherent beams of lights. However, the examiner takes Official Notice that the methods of generating incoherent beams of lights in claims 2-10 and 25-31are well known light generating methods in the art. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate any of the methods in claims 2-10 and 25-31 into the system of the Doucet as the light source of the system, wherein the claimed differences involved to the substitution of interchangeable or replaceable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem, such substitution has been judicially determined to have been obvious. *In re Ruff, 118, USPQ, 343 (CCPA 1958).*

4. Claims 11 and 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Meadows (U.S. Patent US 5,381,250).

Regarding claims 11 and 32, the system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the system includes collimating the beam of light with a gradient index lens. However, a

gradient index lens is well known in the art, and using a gradient index lens to collimate a beam of light is also well known in the art. For example, Meadows discloses to collimate a light beam using a gradient index lens (column 3, lines 47-55). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use a gradient index lens to collimate the beam of light, as it is taught by Meadows, in the system of Doucet in order to direct the beam of light to a receiver with sufficient light intensity.

5. Claims 18 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Yonenaga et al. (U.S. Patent US 5,543,952).

Regarding claims 18 and 39, the system of Doucet differs from the claimed invention in that Doucet does not specifically teach to use an interferometer to toggle the light beam to at least one of on and off. However, it is well known in the art to toggle (modulate) the light beam using an interferometer. For example, Yonenaga discloses to modulate the intensity of the light beam to one of on and off using an interferometer (column 3, lines 52-67 and column 4, lines 1-2). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use an interferometer to toggle (modulate) the intensity of the light beam to at least one of on and off, as it is taught by Yonenaga, in the system of Doucet in order to encode the light beam.

6. Claims 44- 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Huggins (U.S. Patent US 4,799,797).

Regarding claim 44, Doucet teaches a transmitter for use in an optical light beam data link capable of transmitting a beam of light across a free space, comprising: a light source to generate a substantially phase incoherent beam of light (column 4, lines 52-56); a modulator to encode data upon the phase incoherent beam of light (fig. 8, beam modulator 752); a collimator (fig. 8, optical antenna 710) to collimate the incoherent beam of light. The system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the light source is a fiber-optic coupled superluminescent light emitting diode. However, a fiber-optic coupled superluminescent light emitting diode is a well known optical source in the art. For example, Huggins used a fiber-optic coupled superluminescent light emitting diode (fig. 7, SLD 170) as the light source for the multiplexed optical sensor system. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use a fiber-optic coupled superluminescent light emitting diode, as it is taught by Huggins, as the light source in the system of Doucet in order to generate wavelength stable light beam for the communication system.

Regarding claim 45, Doucet further teaches that the system comprising a propagating optics to propagate the phase incoherent collimated beam of light across the free space (fig. 8, optical antenna 710).

Regarding claim 46, Doucet further teaches that the propagating optics further includes an active pointing and tracking module to control the direction in which the incoherent beam is propagated (fig. 8, beam alignment detector 762 and active optics control system 760).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Swanson et al. (U.S. Patent US 5.062.150) teach a fiber-based free-space optical system using both coherent and incoherent optical system. Milano et al. (U.S. Patent US 5,870,215) disclose a compact infrared identification and communication assembly using incoherent infrared light.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
05/09/05

M. R. Sedighian

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PRIMARY EXAMINER